

Listing of Claims

1. (Currently Amended) A method for identifying a compound that modulates cell cycle arrest, the method comprising the steps of:

i) determining in vitro the effect of the compound upon a flap structure specific endonuclease 1 (FEN1) polypeptide, wherein the FEN1 polypeptide has at least 95% identity to SEQ ID NO: 14 and wherein the FEN1 polypeptide has nuclease activity;

ii) contacting a cell comprising the FEN1 polypeptide or fragment thereof or inactive variant thereof with the compound, wherein the FEN1 polypeptide is a heterologous protein and wherein the cell is an A549 cell; and

iii) determining the cell cycle effect of the compound upon the cell comprising the heterologous FEN1 polypeptide, thereby identifying a compound that modulates cell cycle arrest.

2. (Previously Presented) The method of claim 1, wherein the cell cycle effect of the compound is compared to the effect of the compound on a cell comprising a dominant negative mutant FEN1 polypeptide.

3. (Withdrawn) The method of claim 1, herein the chemical or phenotypic effect is determined by measuring cellular proliferation.

4. (Withdrawn and currently amended) The method of ~~claim 3~~claim 1, wherein the cellular proliferation is measured by assaying fluorescent marker level or DNA synthesis.

5. (Withdrawn) The method of claim 4, wherein DNA synthesis is measured by ³H thymidine incorporation, BrdU incorporation, or Hescht staining.

6. (Withdrawn) The method of claim 4, wherein the fluorescent marker is selected from the group consisting of a cell tracker dye or green fluorescent protein.

7. (Original) The method of claim 1, wherein modulation is activation of cell cycle arrest.

8.-15. (Canceled)

16. (Previously Presented) The method of claim 1, wherein the polypeptide is encoded by a nucleic acid comprising a sequence of SEQ ID NO: 13.

17. (Withdrawn) The method of claim 1, wherein the compound is an antibody.

18. (Original) The method of claim 1, wherein the compound is a small organic molecule.

19. (Withdrawn) The method of claim 1 wherein the compound is an antisense molecule.

20. (Withdrawn) The method of claim 1, wherein the compound is a peptide.

21. (Withdrawn) The method of claim 20, wherein the peptide is circular.

22. (Withdrawn) The method of claim 1, wherein the compound is an siRNA molecule.

23.-44. (Canceled)